

The diagram illustrates a charge pump step-down DC/DC converter. It features an input terminal 4 labeled V_{in} and an output terminal 7 labeled V_{out} . A load capacitor $C3$ is connected between the output terminal 7 and ground. The converter is composed of three main functional blocks: a 'Step-down charge pump circuit' (11), a 'Driving circuit' (12), and a 'Series regulator' (2). The input V_{in} is connected to the non-inverting input of the series regulator (2) and also to the input of the step-down charge pump circuit (11). The output of the series regulator (2) is connected to the output terminal 7. The output of the step-down charge pump circuit (11) is connected to the input of the driving circuit (12). The driving circuit (12) is controlled by a 'Mode setting signal S2' (terminal 5) and a 'Light load judging signal S1' (terminal 6). The driving circuit (12) also provides a feedback signal to the inverting input of the series regulator (2). A switch S3 is connected between the mode setting signal S2 and the light load judging signal S1.

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Fig. 3

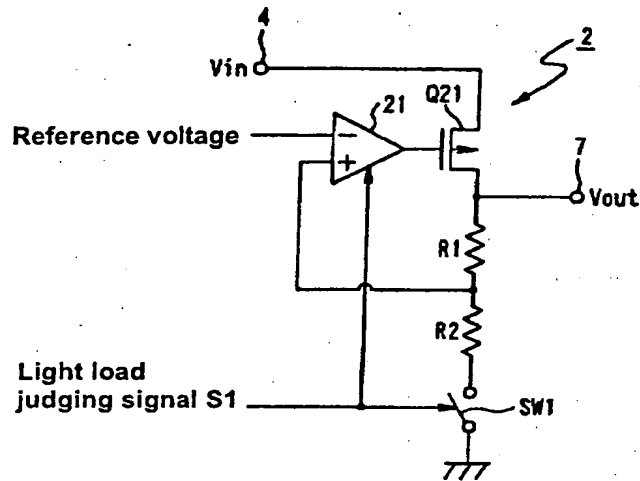


Fig. 4 A

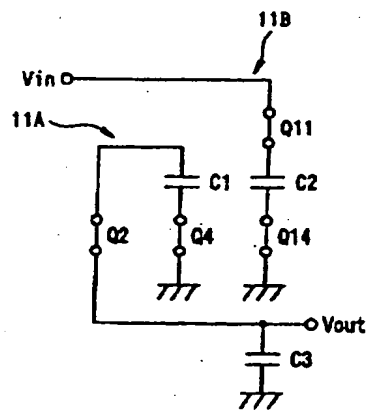
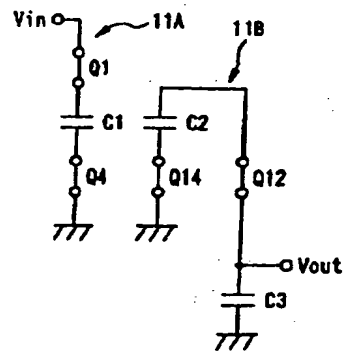


Fig. 4 B



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Fig. 5 A

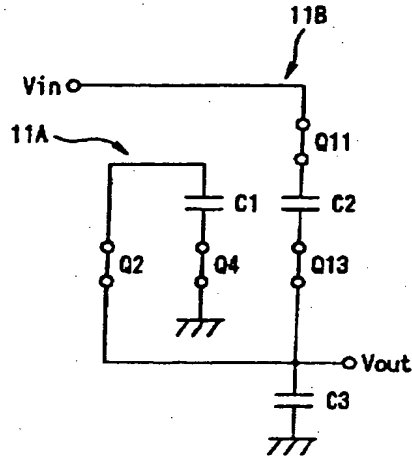


Fig. 5 B

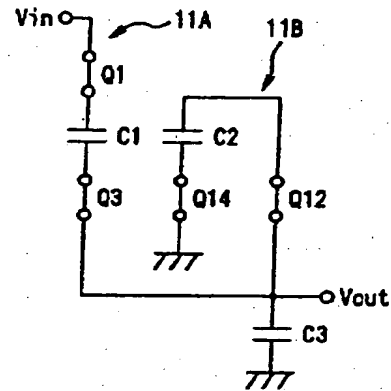
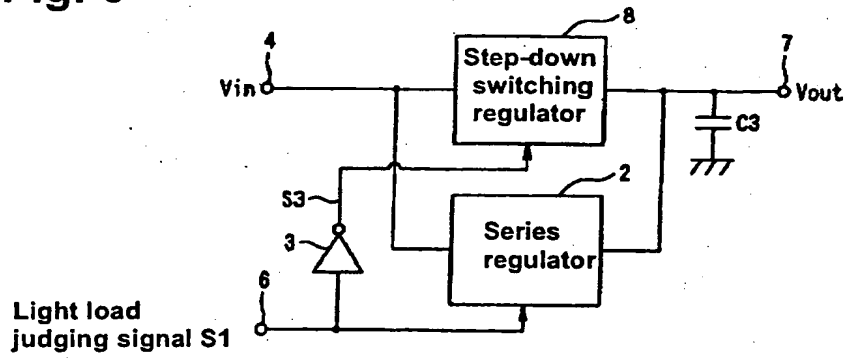
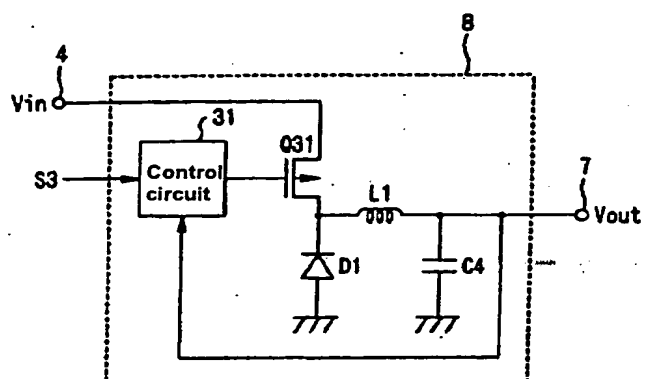


Fig. 6



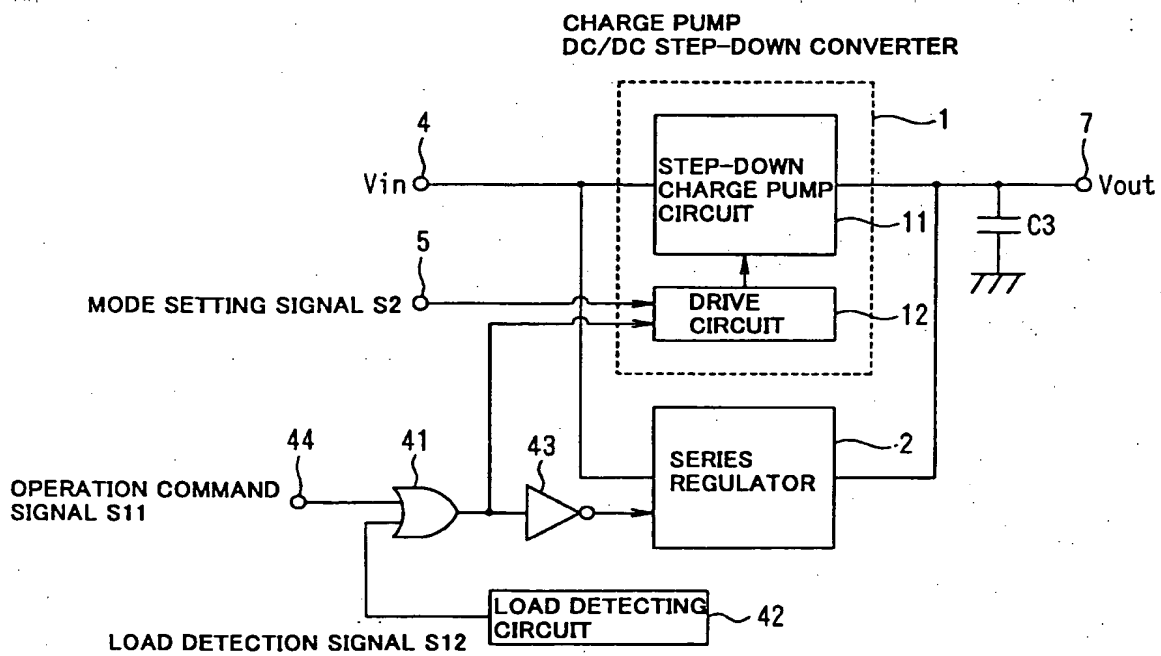
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Fig. 7



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FIG. 8



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FIG. 9A

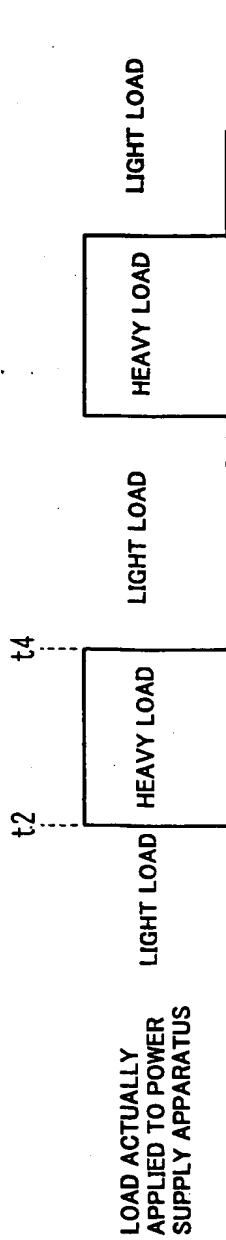


FIG. 9B

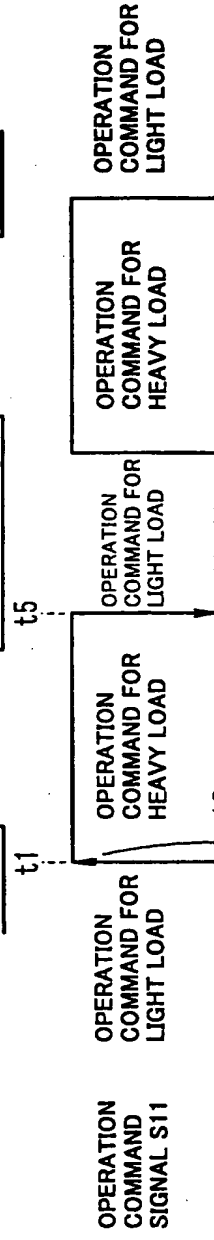


FIG. 9C

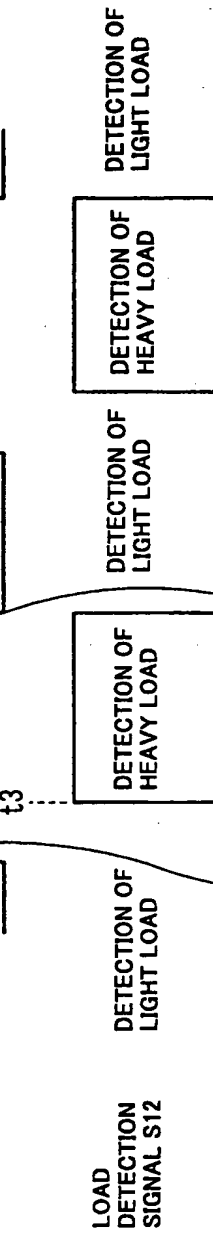


FIG. 9D

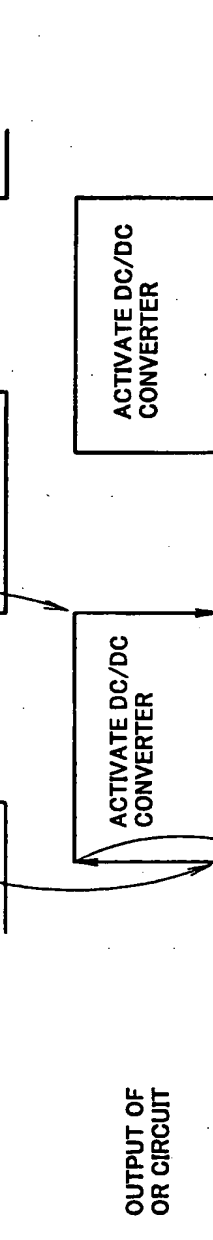
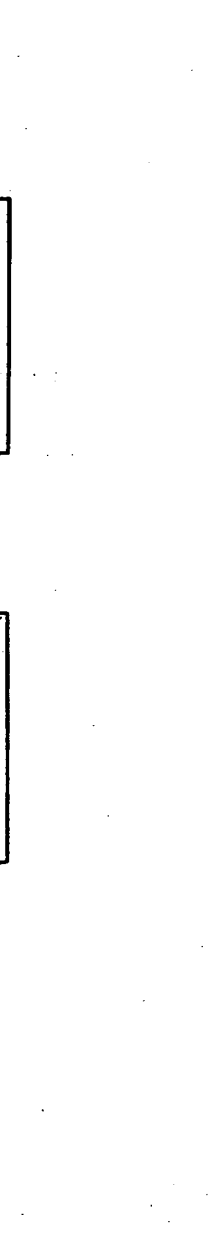
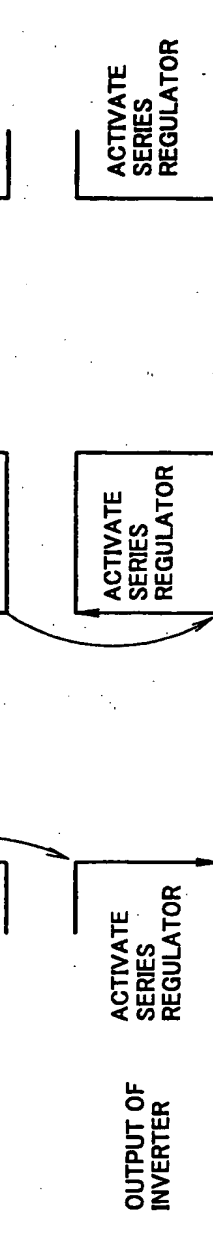
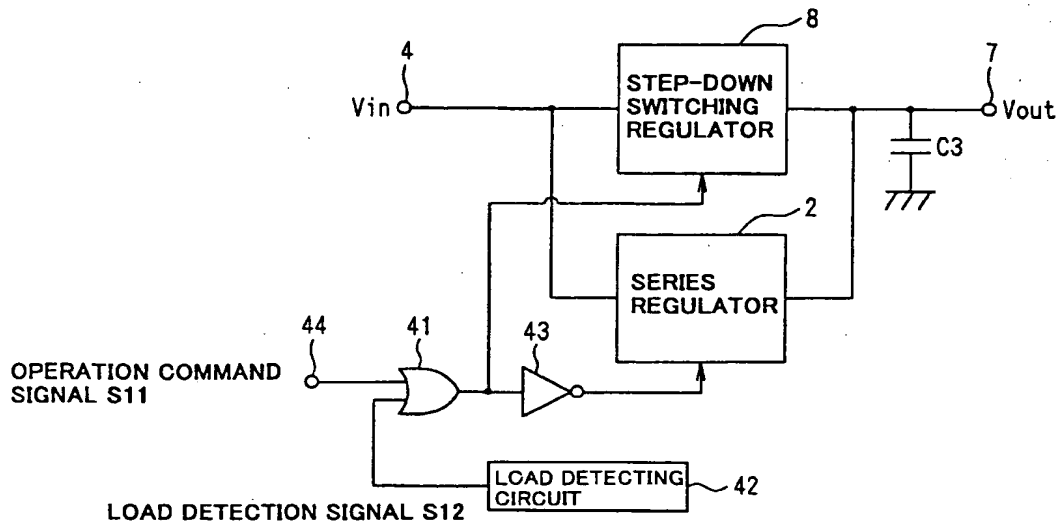


FIG. 9E

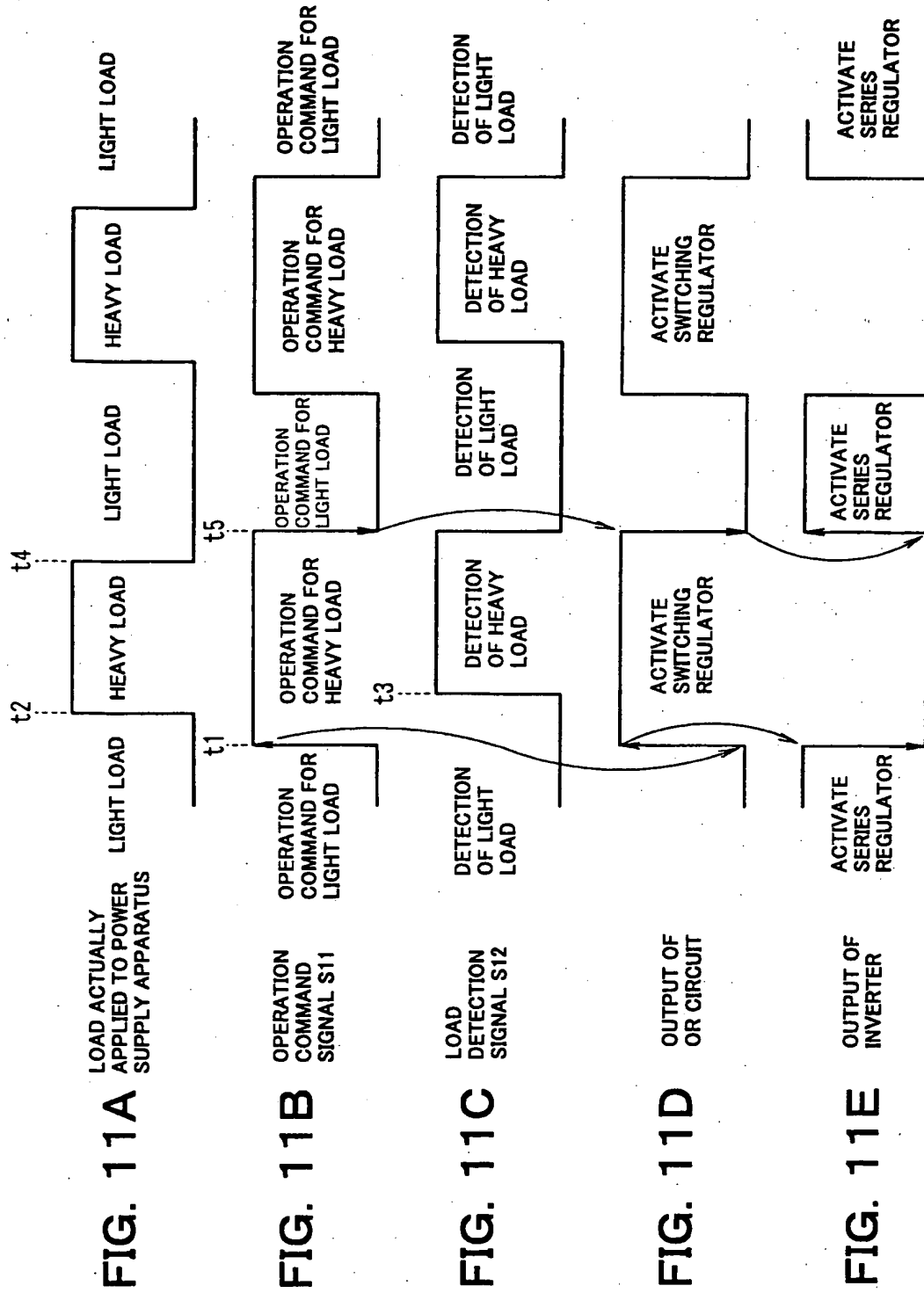


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FIG. 10



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FIG. 12

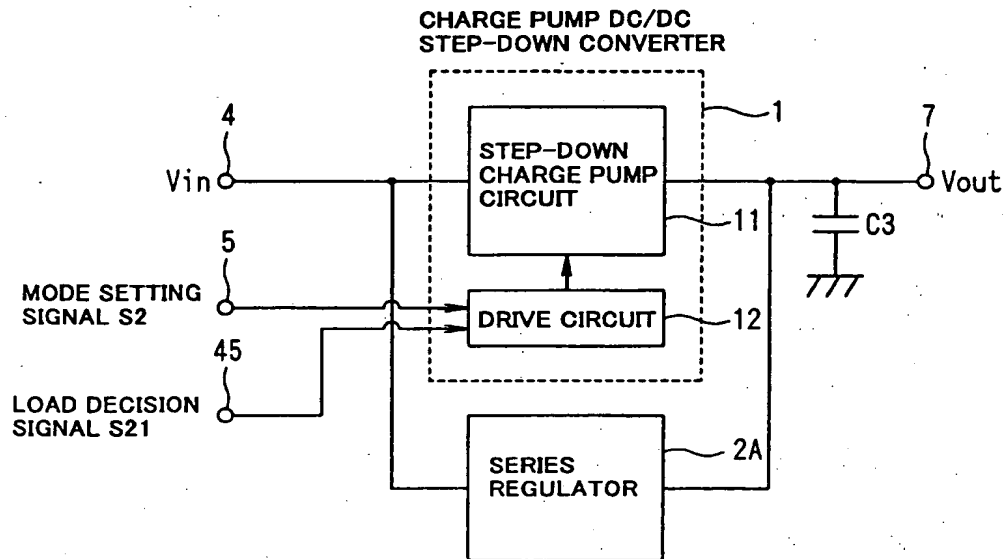
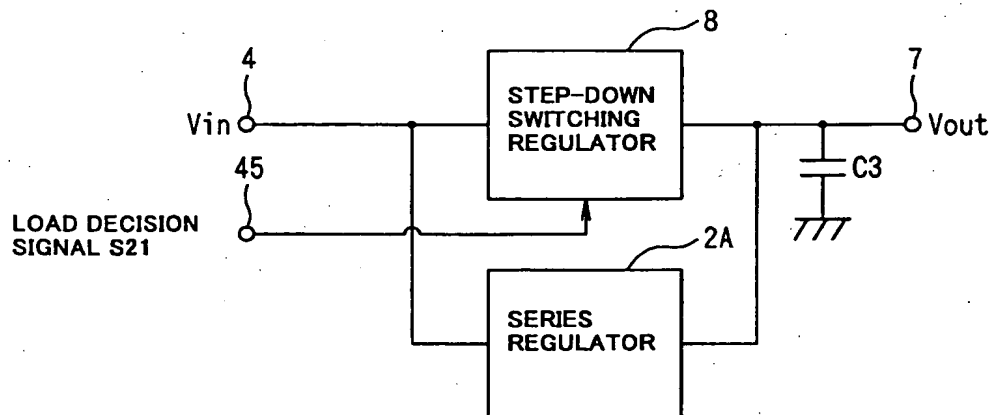
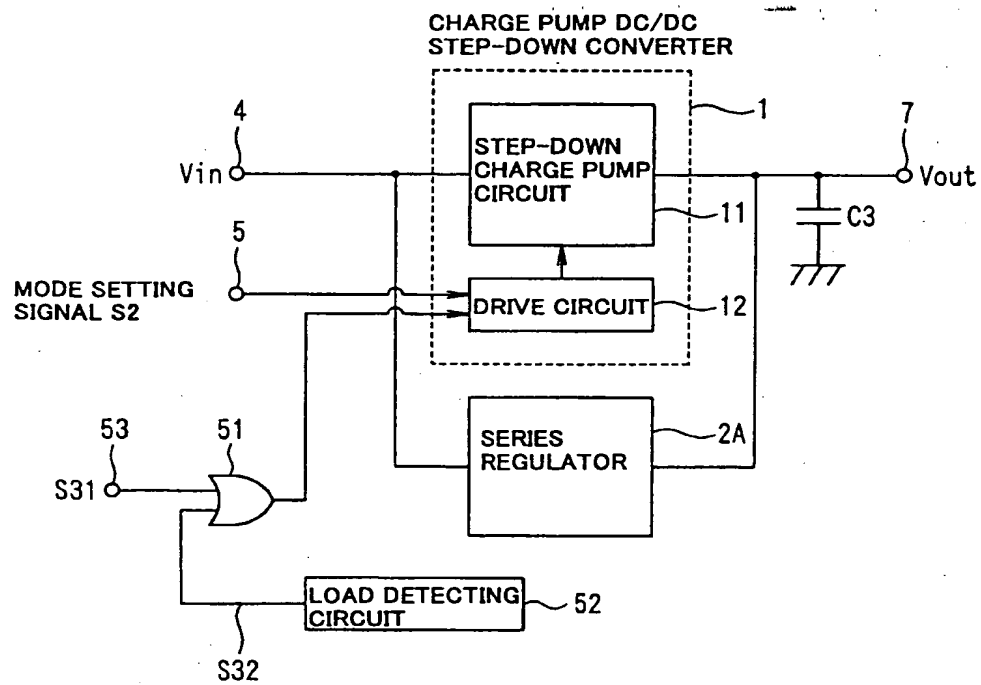


FIG. 13



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FIG. 14



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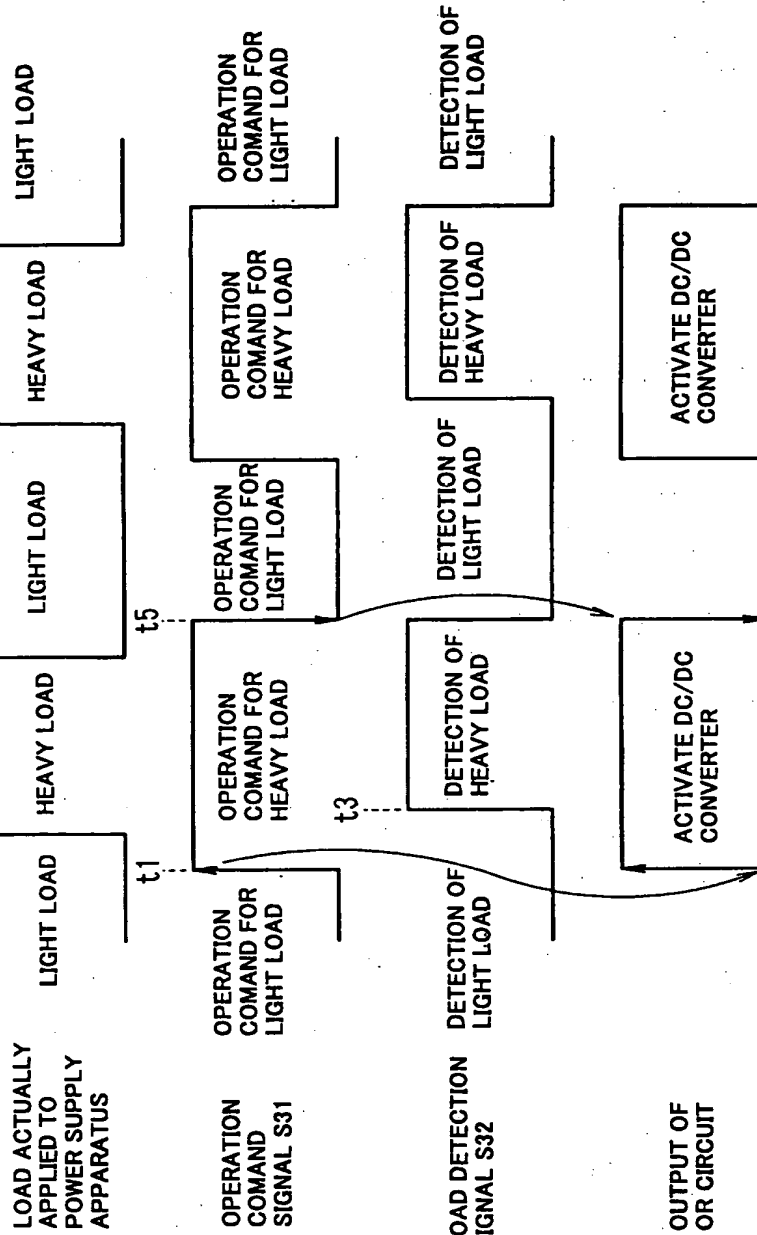


FIG. 15A

FIG. 15B

FIG. 15C

FIG. 15D

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FIG. 16

